

REMARKS

This amendment is being filed as a response to the Office Action of November 17, 2009. Applicants respectfully request reconsideration of the application in view of the following remarks submitted in support thereof. The current status of the claims is summarized below.

Independent claims 1, 32, and 37 have been amended. Dependent claims 3, 34 and 55 have been amended to correct typographical/grammatical errors.

Claim 59 is newly added.

Claims 1, 3-7, 32-34, 36-39, 41-43 and 49-59 are pending after entry of this amendment.

Allowable Subject Matter

The Examiner indicated allowable subject matter for claims 2-7, 35, 36, 38, 40-43 and 49-58. The Examiner has objected to claims 2-7, 35, 36, 38, 40-43 and 49-58 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Rejections under 35 USC § 103(a)

Claims 1 and 37 were rejected as being unpatentable over Saito (U.S. Patent No. 5,257,386) (hereinafter “Saito”) in view of Flynn, Jr., (U.S. Patent No. 6,453,392) (hereinafter “Flynn”). Claim 32 was rejected as being unpatentable over Saito in view of Flynn and further in view of van Rietschote (U.S. Patent No. 7,213,246) (hereinafter “Rietschote”).

The Applicants respectfully traverse the rejection under 35 USC § 103(a), however, in order to expedite issuance of claims 1-3, 5-7, 32-34, 36-39, 41-43, and 49-58, the Applicants have elected to take the allowable claims. The Applicants, however, reserve the right to later file one or more continuation applications having scope similar to the original independent claims or broader, if so desired.

Applicants have amended independent claims 1 and 37 to include all the limitations of allowable dependent claims 4 and 40, respectively. Accordingly, independent claims 1 and 37 are now in a condition for allowance.

Applicants have also amended independent claim 32 to include the limitations of allowable dependent claim 35. Accordingly, claim 32 is now in a condition for allowance.

New Claim 59:

Applicants added new independent claim 59. New independent claim is similar in scope to the original independent claim 1, with added limitations regarding a masking feature. Specifically, claim 59 includes "*...masking one or more of data storage units within a data storage system so that the identified plurality of possible paths do not consider the possible paths to the one or more of the masked data storage units....*" Support for the newly added feature can be found throughout the as-filed specification, and in particular with regard to Fig. 6, step 754, and corresponding description in Specification in paragraph [0085]. Accordingly, it is submitted that no new matter was added by way of this new claim.

In the Office Action, original claim 1 was rejected as being unpatentable over Saito in view of Flynn. Given this rejection, Applicants will distinguish new claim 59 over these references, as new claim 59 includes all the limitations of the original independent claim 1 and additional clarifying feature, as specified above.

Saito does not teach the claimed masking of one or more data storage units so that the possible paths to these masked data storage units are not selected when selecting a path from the plurality of paths for transferring data between the VM and the virtual storage device. Instead, Saito teaches a data transfer control system for a VM system, which selects a path to transfer data between the main storage and the external storage. As confirmed by the Examiner in the Office Action, Saito, does not use any VM specific information when queuing the data in a generic queue. Saito is also silent about masking any portion of external storage or main storage. In fact, Saito teaches using a path selector to select a free path between the main storage and external storage for the request. The path selector judges whether a path is free so that it can assign the path for the data transfer request. (See Figs. 4 and 5, Step S3 and the corresponding description in the Specification). This suggests that the path selector looks at each and every available path so as to assign a path for the request. Thus, the paths to all storage units including the ones leading to one or more masked storage units will be assigned as long as the path is free. This is different from the claimed invention wherein the paths leading to one or more masked storage units are not considered when assigning paths for transferring data.

Flynn also does not teach or suggest masking one or more of the data storage units within the data storage system so that the plurality of paths identified for transferring data between a virtual machine and a virtual storage device does not include the paths leading to the masked data storage units. Flynn teaches sending a virtual machine (VM) ID associated with a virtual machine to a storage controller along with a request to access a storage device in a storage system through one of a plurality of channel path groups. The channel path group includes a plurality of channel paths and is identified using a path group (PG) ID. The VMID is used to determine the scope of the access request and together with the PGID is used to select a particular channel path within a channel path group. The virtual machine associated with the VMID is given exclusive access to the selected channel path represented by the PGID. (See Fig. 1, Summary in column 5, lines 53-57 and column 6, lines 9-16).

The teachings of Flynn are similar to the teachings of Saito, in that when a storage access request is received from a particular VM, the VMID and the PGID of the request are verified against stored values. When the VMID and PGID values of the request agree with the stored values then the VM is provided exclusive access to the storage device through all the paths within the path group. This suggests that all the paths within the PGID are considered for exclusive access to the VM including ones that may lead to storage units that are inoperable or unavailable within the storage device. This is in contrast to the claimed invention, which masks one or more storage units within a storage device and the selection of a particular storage path for data transfer does not consider the paths that lead to the masked storage units. As can be seen from the aforementioned argument, the newly added claim 59 includes patentably distinctive features over the cited art of Saito and Flynn.

The Applicants therefore respectfully request reconsideration and allowance of the pending claims. A Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present amendment, the Examiner is invited to contact the undersigned at 408-774-6903 to discuss any additional changes the Examiner may feel is necessary in light of this Amendment.

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Respectfully submitted,

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